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ARL 03-83

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**Amendments to the Claims:**

This listing of Claims will replace all prior versions and listings of Claims in the Application.

**Listing of Claims:**

Please Amend the Claims as Follows:

Claims 1-12 (Canceled).

Claim 13 (currently amended): A multilayer structure, comprising:

a silicon based substrate; and

an epitaxial  $\text{Cd}_{1-z}\text{Zn}_z\text{X}_x\text{X}'_{1-x}$  film grown on the silicon based substrate, where X is a

chalcogenide selected from the group consisting of S and Se; X' is a higher atomic

number chalcogenide relative to X and X' is selected from the group consisting of S, Se

and Te; x is a number greater than zero and less than 1; and z is a number greater than or

equal to zero and less than one;

~~The multilayer structure of claim 1, further comprising~~

a  $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$  layer grown on the  $\text{Cd}_{1-z}\text{Zn}_z\text{X}_x\text{X}'_{1-x}$  film, the  $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$  layer being

substantially lattice matched to the  $\text{Cd}_{1-z}\text{Zn}_z\text{X}_x\text{X}'_{1-x}$  film.

Claim 14 (original): The multilayer structure of claim 13, wherein X is Se and X' is Te.

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Claim 15 (original): The multilayer structure of claim 14, wherein  $x+z$  is between 0.01 and 0.08 and  $y$  is between 0.15 and 0.35.

Claim 16 (original): The multilayer structure of claim 13, wherein  $z$  is zero.

Claim 17 (original): The multilayer structure of claim 16, wherein  $X$  is Se and  $X'$  is Te.

Claim 18 (original): The multilayer structure of claim 16, wherein  $x$  is between 0.01 and 0.08 and  $y$  is between 0.15 and 0.35.

Claims 19-24 (cancelled).

Claim 25 (currently amended): A  $\text{Cd}_{1-z}\text{Zn}_z\text{Se}_x\text{Te}_{1-x}$  film grown by molecular beam epitaxy on a silicon based substrate, where  $x$  is a number between zero and one inclusive and  $z$  is greater than zero and less than one; having an overlayer of  $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$  thereon. The  $\text{Cd}_{1-z}\text{Zn}_z\text{Se}_x\text{Te}_{1-x}$  film of claim 24, wherein the  $\text{Cd}_{1-z}\text{Zn}_z\text{Se}_x\text{Te}_{1-x}$  film is substantially lattice matched to the overlayer of  $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$ .

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Claim 26 (currently amended): The film of claim ~~24~~ 25, wherein  $x+z$  is between 0.01 and 0.08 and  $y$  is between 0.15 and 0.35.

Claims 27-31 (cancelled).

Claim 32 (currently amended): A  $\text{CdS}_x\text{Te}_{1-x}$  film grown by molecular beam epitaxy on a silicon based substrate, where  $x$  is a number between 0 and 1 inclusive, having an overlayer of  $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$  thereon ~~The  $\text{CdS}_x\text{Te}_{1-x}$  film of claim 31,~~ wherein the  $\text{CdS}_x\text{Te}_{1-x}$  film is substantially lattice matched to the overlayer of  $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$ .

Claim 33 (currently amended): The film of claim ~~34~~ 32, wherein  $x$  is between 0.01 and 0.08 and  $y$  is between 0.15 and 0.35.

Claim 34 (cancelled).

Claims 35-68 (canceled).

Claim 69 (new): A  $\text{Cd}_{0.97}\text{Zn}_{0.03}\text{Se}_{0.1}\text{Te}_{0.99}$  film grown on a single crystal silicon (2 1 1) oriented based substrate, having an overlayer of  $\text{Hg}_{0.78}\text{Cd}_{0.22}\text{Te}$  thereon, wherein the  $\text{Cd}_{0.97}\text{Zn}_{0.03}\text{Se}_{0.1}\text{Te}_{0.99}$  film is substantially lattice matched to the overlayer of  $\text{Hg}_{0.78}\text{Cd}_{0.22}\text{Te}$ .